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POLICY ROUNDTABLE SERIES

Strategies for U.S.–Developing Country Collaboration *in* Distance Education

October 24-25, 2002

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THE ASSOCIATION LIAISON OFFICE
FOR UNIVERSITY COOPERATION IN
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CONVENED AT

The Association Liaison Office
for University Cooperation in Development
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Foreword

The Association Liaison Office for University Cooperation in Development (ALO) is pleased to present this report of the Roundtable on *Strategies for United States – Developing Country Collaboration in Distance Education*. ALO, established in 1992 by six of the nation's higher education associations, promotes strategic engagement between the higher education community and the U.S. Agency for International Development (USAID). ALO Roundtables focus on higher education and global development, addressing important cross-sectoral issues and the changing environment of development cooperation. The purpose of the Roundtables is to highlight strategies for more effective cooperation between the American higher education community and USAID.

ALO and USAID believed the time was right to examine some best practices of colleges and universities in distance education, and to offer suggestions for future donor-assisted distance education efforts in developing countries. This report contains some encouraging examples of models for the design and delivery of distance education based on the diverse experiences of the U.S. experts invited to participate in the Roundtable. It reflects their thinking on the importance of international collaboration in distance education, the consensus view that much more than technology is involved, and a measure of agreement on some of the key variables that will need to be taken into account in future planning.

The aim of the Roundtable was to try to determine how information and communication technologies can be used within the framework of higher education to reach emerging professionals in developing countries, those who will eventually be responsible for leading local development efforts. Particular interest lay in the design and development of shared courseware that offers access to new knowledge, opportunities for continuing education and upgrading of professional skills, joint credentialing, and faculty/researcher networking, and to do this on a scale large enough to make a difference for development.

I would like to thank all the participants for sharing their experiences and their wisdom with us both during the Roundtable and in the follow-up activities. The report aims to stimulate discussion by all those involved in distance education within the higher education community in the United States, and to offer useful suggestions to USAID for purposes of improved program development.

I wish to acknowledge, in particular, the contributions of Christine A. Morfit, ALO Senior Consultant, in planning the Roundtable with colleagues at USAID and preparing the report, and John C. Vaughn, Executive Vice-President, Association of American Universities, in guiding and drawing lessons from the discussions.

Joan M. Claffey
Executive Director
Association Liaison Office
for University Cooperation in Development

Executive Summary

The Association Liaison Office for University Cooperation in Development (ALO) convened a Roundtable on distance education in response to an interest on the part of the United States Agency for International Development (USAID) in collaborating with U.S. colleges and universities to increase the capacity of developing country institutions. Distance education was defined as a means of linking learners to others through the use of information and communication technologies (ICTs). The focus of the Roundtable was on the use of information technology for educational purposes, including developing courseware, obtaining an academic or professional credential, and faculty-researcher networking. Participants supported the notion of a facilitative relationship between U.S. and developing country universities to build networks of mutual interests.

Representatives of the U.S. higher education community suggested a wide range of potential distance education and networking projects involving U.S. and developing country institutions in development-related sectors such as agriculture, education and health. They stressed that knowledge and expertise could be applied in developing countries to build new institutions, develop university capacity, and educate teachers and professionals, and that ICTs are already enabling this to be done in better or expanded ways.

Participants pointed out that distance education must target and address needs through application of appropriate technology, while content should be relevant to the developing country context. In the health field, for example, it is important to ask what type of professional will emerge as a result of distance education efforts, people with enhanced medical or academic skills. The former is important if rapid replacement of health service professionals in an HIV/AIDS affected country is the goal, the latter are important if increasing university capacity is the goal. Given the problems of brain drain from developing countries, participants noted an overwhelming need for trained professionals and the development of regional technical expertise. In the information age the training need is continuous. One of the goals of distance education should be to educate more ICT professionals, as the required infrastructure needs to be built and maintained by local nationals.

Some questioned whether the technology exists in developing countries to implement distance education on a sufficiently large scale to make a difference for development. The majority felt that technology was not the main problem, that issues can be addressed one by one, steps can be taken to address weaknesses, and inventiveness and creativity in problem solving are the key to success. They emphasized the use of needs assessments and surveys to understand a particular country situation before engaging in projects in which trust, mutuality of benefits, the importance of team work, and efforts that do not “reinvent the wheel” are some of the principles behind successful initiatives.

The case study presentations revealed that most significant problems and issues in distance education, both within the U.S. and in some developing countries, are known. For example, distance education needs to be focused on a manageable set of instructional objectives and colleges and universities need to understand their niche; systems need to be flexible with technology that works and is matched to local contexts; institutions need to be ready and plan for reform, particularly in instructional methods and use of faculty; resources need to be

mobilized appropriately with sustainability in mind; economies of scale are important, it is useful to start small to be able to scale up; distance education should not be bolted on to existing courses, there is a need for design teams to produce new courseware. Problems in distance learning are not seen as primarily technological but as organizational and policy related.

USAID asked if several general models for distance education could be proposed that might serve a multitude of individual project objectives. As participants explored their different perspectives, what became increasingly clear was that everyone who had given serious attention to the problems and potentials of international collaboration in distance education had developed a conceptual framework or model. A key question that remained at the conclusion of the Roundtable was whether the differences among the five models discussed were merely differences in the way these models were presented, or whether the differences were more substantial, representing significantly different alternative policies, strategies, and methods for inter-institutional and international collaboration.

Questions posed by the Moderator, John C. Vaughn, Executive Vice-President of the Association of American Universities, for follow up to the Roundtable were: What model might potentially be most valuable as the basis for identifying an approach to distance education suitable for donor support? Could this be one of the five models presented at the Roundtable? Could there be several equally valuable alternative models or a hybrid of two or more models? Alternatively, could it be that there is a common understanding among the experts regarding what are the important variables in international collaboration in distance education, and can a single, generic model be drawn to represent this consensus?

ALO therefore sought the help of participants in designing a template to provide a comparison and assessment of the strengths of the five different models for guiding U.S. - developing country collaboration strategies. Derek Keats, from the University of the Western Cape, designed a “process model” to enable us to consider the five different approaches to collaboration in distance learning from a single perspective. This type of conceptual model examines the processes, tools, and people engaged in any endeavor. It can be used to analyze processes and determine where improvements can be made, to compare processes in similar organizations, for a variety of management purposes, or to develop a mental picture of an organization. In constructing the process models for the collaborations in distance learning identified at the Roundtable, emphasis was placed on people and processes with only cursory attention to tools such as communication platforms and management systems. This was done because a detailed analysis of tools would have added distracting levels of complexity, and also required more information than was available during the Roundtable sessions.

The report includes an introductory section on the rationale and purpose of the Roundtable, and expectations for collaboration in distance education among higher education institutions in the United States and in developing countries. The summary also provides an assessment of some of the issues in distance education within the United States today, presented by Frank Newman, Director, The Futures Project. It is followed by descriptions of eight case studies and five models for collaboration in distance education. The five models include one based on

the case study of the National Technological University, a forerunner in the field of distance education, presented by its founding director, Lionel V. Baldwin. The models discussed during the Roundtable, which have been named, the "Enabling," "Contractual, "Multiple Alliance," "Brokering," and "Commissioning" models, are presented in close proximity to the case studies to which they relate. The aim is for readers to be able to see how the models capture the key features and characteristics of many of the distance education programs described in the case studies. A sixth model, derived from written communication with Derek Keats, the "Virtual Entity" model, has also been included as this shares some of the main advantages of the "Multiple Alliance" model.

The final section of the report provides a review and analysis of the five models presented at the Roundtable by Michael G. Moore of The Pennsylvania State University. From this review, it becomes clear that no single model discussed at the Roundtable will be the most valuable under all circumstances, and that while the models share certain core concepts, they represent a continuum of options, each of which is likely to be the most useful guide for practice within a range of contexts and circumstances. After analyzing the educational/training context in which a distance education program should be established and receiving a report on the learning needs in that context, USAID can pull from the range of models described, and select from this 'toolbox' the one that is most appropriate.

Summary of the Proceedings

Introduction: Rationale and Purpose of the Roundtable

Joan M. Claffey, Executive Director of the Association Liaison Office for University Cooperation in Development (ALO), welcomed participants to the Roundtable, an invitational gathering of representatives from U.S. colleges and universities with expertise in distance education and senior officials from the U.S. Agency for International Development (USAID). She acknowledged the support ALO receives under a cooperative agreement with USAID for expansion of the dialogue with the higher education community on emerging development issues.

John C.Vaughn, Executive Vice-President of the Association of American Universities, moderated the proceedings and outlined the rationale and purpose of the Roundtable, one in a series of gatherings designed to provide an opportunity for USAID to access the knowledge and expertise of the higher education community.

Both the U.S. Agency for International Development (USAID) and the higher education community believe that the application of distance education concepts and technologies holds tremendous promise for attainment of common goals related to international development. Increasing the competency of cadres of emerging professionals in developing countries who work in development-relevant sectors such as agriculture, education, and health is an important objective for USAID. Distance education approaches have the power to facilitate learning by increasing international access to experience and knowledge from established universities worldwide.

The Roundtable brought together USAID representatives from the Bureau for Economic Growth, Agriculture, and Trade (EGAT), the Bureau for Africa, and representatives from the higher education community to consider alternative strategies and approaches for U.S.-developing country collaboration in distance education. The focus of the Roundtable was on the use of ICTs for purposes of distance education, including development of shared courseware, joint credentialing, and faculty and researcher networking among U.S. and developing country higher education institutions. The conveners launched discussion with the premise that new strategies for accomplishing U.S. - developing country collaborations in distance education are needed, or at least, lessons learned from successful experience need to be more widely applied. Participants were asked to consider what lessons can be learned by comparing “false starts” with successful distance learning efforts. USAID was interested in finding out how, in partnership with higher education, ICTs can be used to reach the greatest number of emerging professionals who ultimately will provide local leadership for development efforts. Specifically, USAID expected that through in-depth discussion of successful approaches to distance education, Roundtable participants would be able to suggest feasible approaches for future Agency programming.

View from USAID's Bureau for Economic Growth, Agriculture, and Trade

Emmy Simmons, Assistant Administrator, Bureau for Economic Growth, Agriculture, and Trade (EGAT), underscored the belief that distance education holds tremendous promise for the training of developing country professionals. The Office of Education, which has incorporated basic and distance education into its programs in addition to higher education and training, is part of the EGAT Bureau. This office will continue to work cooperatively with the newly created Office of Energy and Information Technology (EIT) on programs that involve information technology and the higher education community.

Simmons posed several challenges for participants to consider: How can distance education effectively engage people's minds? How can the learner develop the tools to learn? How can U.S. and developing country institutions of higher education develop effective partnerships for design and delivery of distance education?

Anthony Meyer, Director, Information Technology, EGAT/EIT, welcomed participants and outlined USAID's expectations for the Roundtable, noting that USAID had been increasing its involvement in the use of information and communication technology for development since the mid-nineties—in 1995 through the Leland Initiative in Africa; in 1998, through the worldwide Presidential Internet for Economic Development Initiative; in 2000, through the G-8 Digital Opportunity Task Force; and, in 2002, through the planned Digital Freedom Initiative of the Bush Administration. These initiatives have stressed the importance of expanding digital opportunity in the developing world through telecommunications policy liberalization and reform; increasing access to the Internet and related information technology by the underserved; and increasing the impact of development programs through the use of the Internet and related technology.

Meyer said that over 35 USAID Missions have participated in such initiatives. Since 2000, when information and communications technology for development became one of five Agency cross-cutting themes, the Information Technology Team at USAID has increased the size of its staff and its programs. He noted that one of the contradictions the Agency often faces is that the Internet provides a global platform while the Agency works for the most part in a bilateral mode. Most Agency funding is allocated through bilateral assistance programs. In this context, a major function of EGAT/EIT is to promote the global or regional use of the Internet and related information technology.

Meyer said that he could think of fewer things that could have a greater impact on development than linking the power of U.S. higher education institutions with that of developing country higher education institutions to dramatically increase access by emerging professionals in those countries to courses, credentials, and professional networks through the Internet.

Meyer also said that he used to think that the proliferation of distance education opportunities in the developing world would happen regardless of USAID action. However, efforts have been sporadic and many have failed, perhaps due to an insufficient business model or as a result of the boundaries of institutional agendas that are too significant to be overcome. He recognized that it was time to examine how USAID might become a facilitator in this environment. The purpose of the Roundtable, as he saw it, was to explore if this was a viable idea. Meyer observed that developing countries do not seem to undertake distance education efforts alone, and therefore need support. Whether this support should be region by region, or sector by sector, whether a global brokering approach would be feasible or a partnership by partnership approach would work, were issues he put before the Roundtable.

View from Higher Education

Moderator John C. Vaughn, Executive Vice-President of the Association of American Universities, opened the Roundtable proceedings by stressing the capacity of U.S. higher education to build and develop new institutions and to educate teachers and professionals in developing countries. The use of information and communication technologies enable higher education to perform these tasks in better and expanded ways. Given the broad scope for collaborations involving U.S. and developing country institutions, Vaughn suggested that the purpose of the Roundtable was to bring a sense of organization and coherence to participants' thinking on the topic without being overly prescriptive. What the meeting hoped to achieve was an examination of some of the key characteristics of successful models of distance education that could be applicable across a number of different fields in USAID-assisted countries.

Michael Baer, Senior Vice-President for Programs and Analysis, American Council on Education, acknowledged the timeliness of the Roundtable. He said that the United States is in an era of experimentation at institutions of higher education in the development of the content and pedagogy for online courseware, in the delivery mechanisms for the courseware, on the facilitation of instructional use, and in the academic and business structures that make the use of the materials feasible. Baer felt that in examining distributed education, particularly in provision of education beyond our national boundaries, the United States needed to be aware that much of the discussion about the global dimension of American higher education has been more about markets and less about learning. Entrepreneurial strategy does not necessarily translate into an academic strategy, and there is great temptation to focus on what the global economy can do for the institution rather than on what the institution, acting in a global capacity, can do for its students. Baer said we need to ask: Are distance-learning courses offered by the institution to students outside the United States tailored to an international audience in terms of content and pedagogy? Is it possible for institutions to use information technology in new ways to cross cultural boundaries? Taking an existing course and adapting it to distance format does not in itself address either the knowledge needs or the learning habits of an international audience. A course in organizational behavior, for example, rooted in American corporate traditions and culture, may seem very remote to a French, Thai, or Central African student, especially a mature student with firsthand experience of organizational issues in his or her own cultural setting.

Assessment of Issues in Distance Education Today: What Has Been Identified, and What Do We Need to Know? Frank Newman, Director, The Futures Project, Brown University

Frank Newman, Director, The Futures Project, Brown University and former president of the University of Rhode Island, presented an overview of lessons identified from U.S. university involvement in distance education. He began by noting that the process of virtual learning in developing countries has been frustrating, but the overall process is improving. In the United States, some 3,000 higher education institutions are involved in training over three million students at a distance in a variety of ways through the use of information and communications technologies, blurring the distinction between online and traditional learning. Student demographics are shifting. In the United States, high school students are increasingly enrolled in online courses, and students who are not well-served on campus are turning almost exclusively to online instruction, which belies the myth that older students make up the bulk of online classes.

Both non-profit and for profit institutions are involved in online instruction. The University of Maryland has the largest online offerings among the non-profits, and the University of Phoenix the largest among the for-profits. Many consortia are now offering online courses. Recent attention has been drawn to the failure of purely online institutions, which do not appear to do well in the long-term. Newman felt it was interesting that so many questions are raised about the quality of online education when there are so many flaws in traditional classes. He said that we are seeing the flaws of the existing system exposed and it is very likely that a mix of traditional and online courses will be seen in many places in the future. Although seemingly counterintuitive, students generally appreciate the fact that IT actually allows them more contact with professors; their e-mails are answered whereas professors' office hours tend to be very limited and can create frustration. Newman pointed out that the myth that either traditional face-to-face instruction or online is best is false, as a combination of both traditional and online instruction has proven extremely effective.

Among the lessons learned from distance education efforts are that some things are easy and cheap to do, while others are more expensive. Building universities is very expensive whereas building digital libraries is easier and cheaper. Since students in the United States visit libraries less frequently in recent years, "we need to get away from the mindset that for a student to hold a textbook is akin to a religious experience," Newman said. Students most commonly use their computers in libraries to talk to each other as members of a community in which learning is shared. Most courses focus on the student as an individual learner, whereas learning can be more effective when students learn together. "Building online learning communities is a very inexpensive and powerful thing to do. When thinking about IT applications in developing countries, we must appreciate that people overseas also enjoy the sense of community which IT engenders," Newman said.

Newman stressed that there are a number of unresolved issues relating to distance education including the major issue of how to guarantee quality and standards in online programs; problems of availability of equipment and Internet access; the issue of cost; the question of acceptance of online courses rather than traditional face-to-face teaching; and the issue of whether distance education contributes to the problem of brain drain in developing countries. In addition to cross-cultural problems in course design, Newman raised the criticism that online courses tend to be too job skills oriented, when in the context of a university education, it is important that civic and social skills are also addressed.

Case Studies

The eight case studies described below, cover a range of experience from U.S.-based distance education programs to U.S. facilitated programs in developing countries, from involvement of a U.S. lead institution to the creation of multiple alliances among a network of cooperating higher education institutions both in the United States and overseas. The underlying rationale for the selection of these case studies was the desire to highlight examples of collaboration within and among higher education institutions that were committed to reform and restructuring of traditional educational programs. These involved programs for both undergraduates and post-graduates including professionals in a wide range of fields, and both faculty and researchers. As the focus of the Roundtable was on collaboration between U.S. colleges and universities for the introduction of distance education into developing country institutions with support from the donor community, a purely commercial approach such as that undertaken by the University of Phoenix was not examined at the Roundtable. Nor was the approach taken by the World Bank through its Global Development Learning Network, that makes use of videoconferencing from fixed locations or centers, believed to reflect the focus on capacity building within the higher education community in developing countries that was the major concern of the Roundtable.

1. Pew Program in Course Redesign. Carolyn Jarmon, Rennselaer Polytechnic Institute

Carolyn Jarmon outlined support from the Pew Charitable Trusts for a $6 million, three-year program to encourage colleges and universities to redesign their approaches to instruction using IT to achieve cost savings and enhance quality. Jarmon spoke of three primary challenges in higher education: quality, access, and cost. She noted that costs will continue to rise if there is an exclusive reliance on the credit-for-contact model. She said that it is not sufficient to "bolt on" new technologies to old methods, as costs will increase further. Personnel costs continue to rise, whereas IT price/performance continues to improve. To reduce costs, higher education needs to reduce dependence on faculty labor.

The Pew Program in Course Redesign has produced multiple models for redesign, created a substantial body of practice and experience that affects large numbers of university students, and improved a prime area of ineffective teaching, the large lecture course. The major characteristics of redesign are: 1) to improve the quality of student learning, 2) to break the credit-for-contact model, and 3) to ensure that students, and not faculty, do the work.

Courses have been redesigned to include more active and less passive learning, fewer lectures and class meetings, more interactive software, a more customized environment, and increased teacher responsiveness to students' learning styles. Jarmon proposed several redesign models:

- Conservative — current structure is maintained, content is changed.
- Hybrid — a blend of face-to-face with online activities.
- Emporium — all classes are moved to a laboratory setting.
- Fully online — all or most learning activities are conducted online, and
- Buffet — online and face-to-face, mixed and matched according to student preferences.

When planning for course redesign, Jarmon suggested that institutions ask the following questions:

- What student characteristics need consideration?
- What capital-for-labor substitutions are possible?
- What kinds of learning materials and activities can be used?
- What kinds of personnel are needed for redesign?
- What kinds of activities can be moved online, what kinds cannot, and why?
- How much face-to-face interaction is needed and why?
- How will the redesign enable desired learning outcomes?
- What kinds of training (initial and ongoing) are needed?
- Are there alternative structures that might be considered rather than a single solution?

Through surveys and a competitive grants process, over 300 institutions in the U.S. have shown readiness to undertake course redesign and demonstrated the necessary institutional commitment. To gauge institutional readiness the Pew program posed the following questions:

- Does the institution want to control costs and increase academic productivity?
- Are institutional leaders committed to using IT to achieve strategic academic goals (i.e., moving beyond providing general support for all faculty and for all courses)?
- Is computing firmly integrated into the institution's culture?
- Does the institution have a mature IT organization to support faculty integration of technology into courses, or does it contract with external providers to support such efforts?
- Do a large number of the institution's faculty members have an understanding of and some experience with integrating elements of computer-based instruction into existing courses?
- Does the institution have a demonstrated commitment of learner-centered education?
- Has the institution made a commitment to learner readiness to engage in IT-based courses?
- Does the institution recognize that large-scale course redesign or development using information technology involves a partnership among faculty, IT staff and administrators in planning and execution?

Course readiness involves asking questions such as the following:

- Which courses, if redesigned, would have a high impact on the curriculum?
- Which courses offer the greatest possibility of capital-for labor substitution?
- Which departments, programs or schools make decisions about curriculum collectively – in other words, beyond the individual faculty member level?

Model 1. An Enabling (facilitation) Model

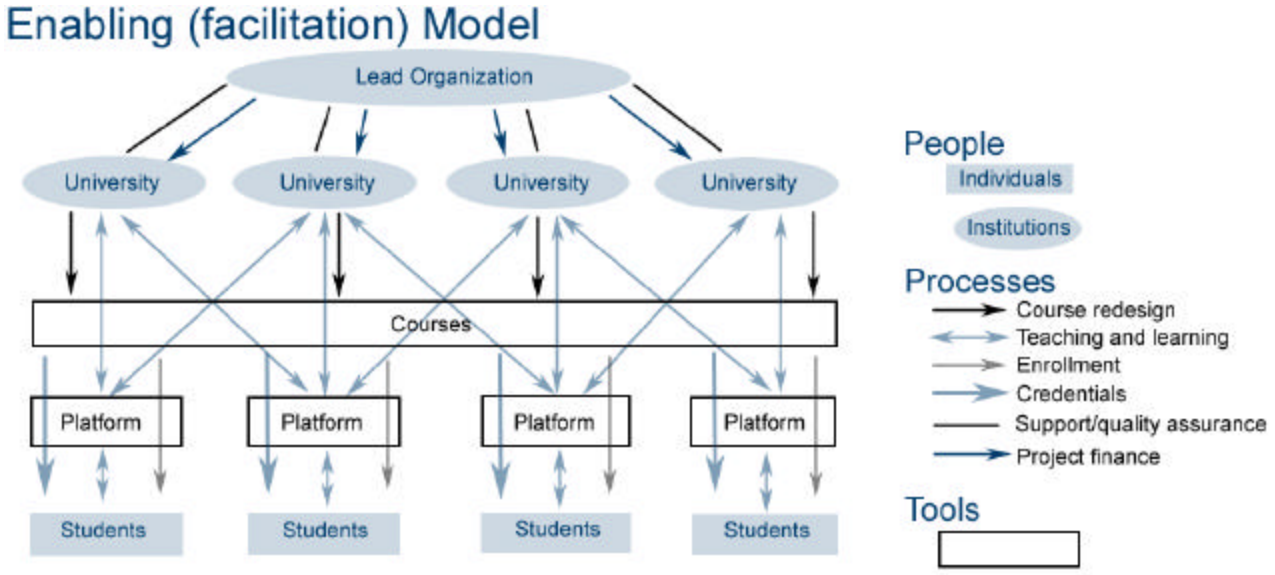
Example:
Pew Program in Course Redesign

Key Elements:
The purpose is to encourage colleges and universities to redesign their approaches to instruction using IT to achieve savings and enhance quality. The model has been replicated numerous times across the United States. It addresses three primary challenges: quality, access and cost.

Organizational Characteristics:
This model offers an enabling mechanism for work in course redesign that has been used by some 30 institutions involving over 50,000 students. A central grant-making institution offers awards to universities, not to individuals but to teams including administrative, faculty and technical personnel. It provides guidance and public instruction on principles of course redesign and "readiness" criteria, and disseminates results; i.e., publishes best practices. Individual universities are responsible for course credentials and for organizing courses, and sections of courses that may be team taught by multiple faculty from several institutions. In situations where all freshmen take at least one particular course, improvement in quality can have a major impact on learning.

Course characteristics:
Focus on large enrollment undergraduate courses; e.g., chemistry, math at both public and private research oriented and small private institutions. Specific domain focus, largely in the sciences, but some social sciences and humanities.

Student characteristics:
U.S. freshmen.



Model 1. Enabling (or facilitation) Model, Pew Program in Course Redesign. *Key element*: *the focus is on the redesign of courses for large-enrollment classes involving first year students.*

Table 1. Pew Program in Course Redesign (Enabling Model).

Process	**Tools**	**People**
Course redesign	Tools for course redesign	Teams within individual universities
Teaching-and-learning	Face-to-face classroom, learning management system	Universities, students. There is some team teaching across universities, but students do not interact across institutions
Enrollment	Management systems of host institution	Each institution enrolls its own students, there is no connection among the participating institutions or their students
Credentials	Not applicable	Each host university accredits its own programs
Support and quality assurance	Miscellaneous communication tools, review process	Lead institution
Project finance	Not applicable	Lead institution is funder

2. Institutional Relationships and Sustainable Systems for Effective Distance Learning. Lionel V. Baldwin, Founding President, National Technological University (NTU).

Lionel Baldwin, founding president of the National Technological University (NTU), spoke on the elements of institutional relationships and sustainable systems for effective distance learning by describing the NTU model for university collaboration in distance education that has already been replicated in developing countries. (The African Virtual University is based on a similar model, and is described below). Founded in 1984, NTU was the first accredited "virtual university" and has had a long history of successful experience as a distance learning and e-learning organization offering engineering professionals a high level of academic continuing education. With no resident campus and with the support of major technology companies, NTU pioneered the delivery of academic courses directly to corporations' training facilities via satellite. Although courses lead to the awarding of a master's degree, (NTU does not undertake undergraduate or PhD education), 50 percent of NTU students already have degrees and are enrolled for the purpose of upgrading their knowledge and professional skills. As NTU's target students are full-time working adults, courses are delivered at the workplace. Students come from North America and the Asia Pacific Rim, although fewer students are from outside the United States. NTU has granted over 1,600 master's degrees since its inception. It also offers credit and non-credit courses that provide engineering and technical professionals the opportunity to update their skills to keep pace with technological innovations in their respective fields.

NTU programs are now delivered via satellite, online, CD-ROM and videotape, with course content provided by faculty in more than 50 accredited universities. The NTU model is not a consortium model. NTU acts as a central coordinating institution entering into contracts with universities for individual faculty time, coordinating input from multiple faculty based in collaborating institutions. While some universities participate across several disciplines, others provide courses within a narrower range. NTU contracts with institutions to provide additional courses according to demand. NTU offers over 15 master's degree programs via distance education with content identical to on-campus programs. Student transcripts show courses taken from a variety of universities and colleges and lead towards a recognized NTU degree. Evaluation of NTU programs show that students taking online courses are self-selected, mature, and motivated and outperform on-campus students.

Baldwin described The African Virtual University (AVU), which is based on a similar model, although this is not a degree-granting institution. An originating institution, the Royal Melbourne Institute of Technology, provides course content and development expertise. It offers accreditation and transfer of experience to a Lead Partner University (LPU) in Africa. The LPU coordinates efforts to adapt courses to a different cultural context and builds expertise in course design and development in Africa. AVU acts as a central coordinating institution. It owns the intellectual property license to degree programs, provides program delivery infrastructure, maintains quality assurance, manages program delivery partner relationships, and relations between all participating universities, and provides general oversight of student management.

3. A Systems Approach to Online Learning. Carol Scarafiotti, Rio Salado College

Rio Salado Community College was established in 1978 to provide active, working adults with flexible educational opportunities designed for their convenience. It offers an accessible low-cost education and has 34,198 credit students, 25 full time faculty and 705 adjunct faculty. Known as "the college without walls," it is unique in that it does not maintain a traditional campus. Courses are delivered for diverse populations using customized programs and partnerships, accelerated formats, and distance learning. Delivery is via the Internet, mixed media and print, on-site at corporations, or through government agencies and community centers. The institution is accredited and offers two –year degree programs and professional certificates.

Scarafiotti explained that Rio's philosophy is that the entire college must work as a system to support its distance/online program. It is one of the nation's leading providers of distance learning courses and it allows students to take courses anytime, anyplace. It offers choice and flexibility with courses designed for independent learners. Over 200 online courses are available every two weeks and availability is the most important factor in the institution's success. No course is cancelled if only one student has registered, and all courses are asynchronous. Only testing is handled face-to-face. Technology provides administrators with a system that enables faculty members to handle several course starts at one time and allows more timely interaction between faculty members and students, keeping everyone on track.

Courses are created through a course-development process that ensures that each course aligns with the "Rio brand" of distance learning. The college offers course development, faculty, and technical support. The course development department is a cross-college group that makes decisions regarding format, delivery, and emerging technologies. The department links a content specialist with a team, each of whom plays a part in the creation of an online course. The team could include a faculty member with extensive experience, a Web technician, a programmer, an editor, someone to handle copyright issues, and someone to coordinate initial testing, for example. The faculty services department recruits adjunct faculty and works with full-time faculty and a support team to provide new faculty with training. Adjunct faculty teach or facilitate the majority of courses. Many faculty teach the same version of a course ensuring consistently high quality. Faculty are compensated for staggered starts over a number of different courses.

Rio Salado believes that the key to its success is the support offered behind its distance learning program, which accounts for its 75 percent retention rate. The institution is very responsive to learner needs and offers customized student services 360 days a year. All student services are completely online. A student services department maintains an instructional help desk, and the "beep a tutor" program uses pagers to provide a student with a tutor within one to two hours of the page, 14 hours a day 7 days a week. Counseling and advising is available (advisers call at-risk students as determined by a survey); library services (including a reference librarian available 7 days a week), registration and book sales are all online. Testing, the only face-to-face activity, is offered at educational institutions and military bases. The

information services department provides a technology help desk available, 14 hours a day seven days a week, to faculty and students and voice mailboxes to faculty. The admissions and records department provides a variety of rosters and grade reports to accommodate the 26 enrollment periods. The marketing department provides course schedules and brochures and manages a call center to handle inquiries.

The characteristics of this model that are similar to the NTU model are strong centralized control with distinct products and services, and the offer of a recognized credential. The student profile is distinctly different, the average student at Rio Salado is a 35 year-old female with a high school education. Both sets of students are seeking skills improvement and professional advancement. NTU places emphasis on recruitment of top faculty. Poor performers are not retained. Rio emphasizes learner support. One key variable is the learning stage (students working towards a first degree, versus advanced degree holders). Another variable is cost. Rio deliberately sets out to offer low cost education. Since reducing the costs of higher education involves reducing the labor intensity of instruction, both NTU and Rio have reduced labor intensity, although Rio has gone one step further by streamlining course management through the use of technology and the offer of support services. Both institutions employ adjunct faculty.

Model 2. A Contractual Model

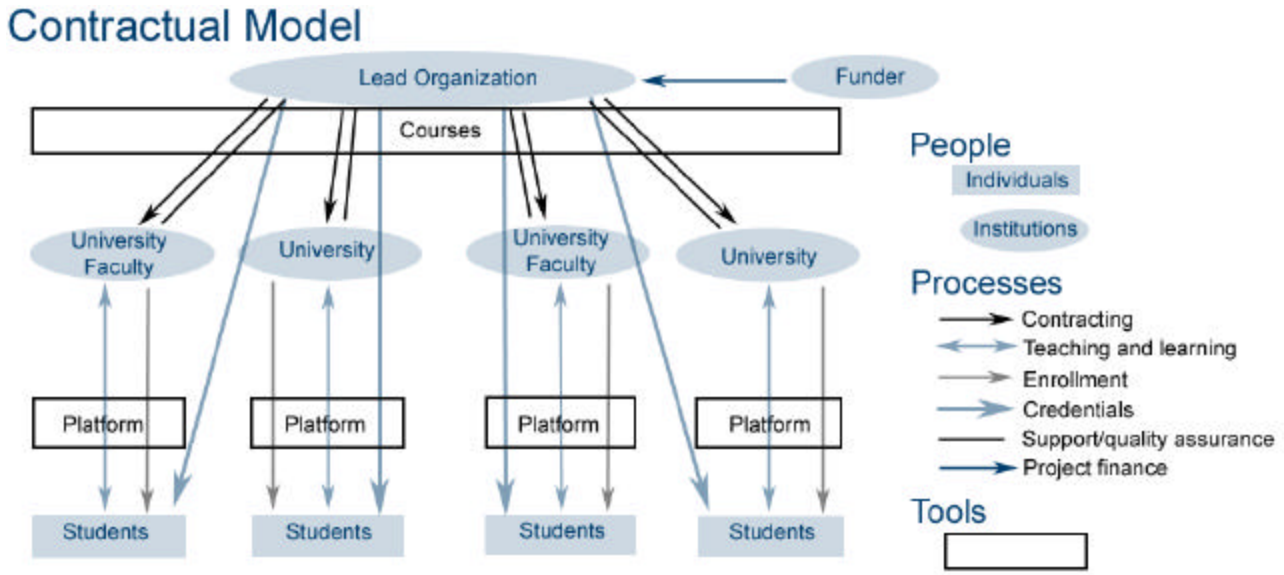
Examples:
- National Technological University (NTU)
- Rio Salado Community College (RS)
- African Virtual University (AVU)

Key Elements:
A central institution at home or overseas is responsible for contracts with multiple institutions (or departments within the central institution; e.g., Rio Salado) for course development and delivery, for maintaining quality assurance, providing program delivery infrastructure, managing program delivery partner relationships, and student management. Credentials are given by the central institution, except in the case of the African Virtual University. Transcripts may show courses from multiple accredited institutions.

Organizational characteristics:
A strong accredited U.S. (or in the case of the African Virtual University, an Australian) higher education institution acts as a central organizer for development and delivery of multiple courses to students. It can include an overseas institution as a Lead Partner University. Strong emphasis on support services is seen as a major factor in student retention at two-year institutions. Support services can involve: an instructional help desk and timely faculty feedback, access to a tutor on demand, access to counseling and advising services, online library facilities, testing and registration and book sales. The originating institution is responsible for organization and maintaining standards for course content. Quality control is assured by retaining only well-performing faculty and by offering faculty development and technological support to ensure a high degree of success.

Course characteristics:
Offers both two-year or graduate courses; multiple offerings readily available (some every two weeks) and accessible. Can have a unique focus; e.g., technical and engineering education or other customized focus.

Student characteristics:
Mature, (some 35 and older), self-selected, and self-motivated. Motivation includes desire to upgrade skills, not simply to obtain a credential.



Model 2. Contractual Model, NTU/RS/AVU. *Key element: Lead organization designs curriculum and then contracts capable institutions to develop and deliver the courses*

Table 2. NTU/RS/AVU (Contractual Model).

Process	**Tools**	**People**
Course design	Tools for course design	Lead organization designs the curriculum and contracts for course development
Teaching-and-learning	Face-to-face classroom, learning management system	Contracted universities or departments within universities or colleges; students. Courses delivered under contract to lead organization
Enrollment	Management systems of host institution	Each institution enrolls its own Students; students do not communicate or collaborate via a shared LMS
Credentials	Not applicable	Lead organization awards credentials; transcripts may show courses from multiple accredited institutions
Support and quality assurance	Miscellaneous communication tools, review process	Lead institution
Project finance	Not applicable	Lead institution via contract, may involve external sponsors

4. Collaboration Between U.S. and African Universities and Faculties: Building Capacity for Internet-Enhanced Education and Research. Mark L. Kornbluh

MATRIX is a humanities technology research center at Michigan State University **(**MSU) that, together with the African Studies Center and in partnership with premiere research institutions in Africa, is pioneering the African Online Digital Library (AODL). The goal is to adopt emerging best practices of the American digital library community and apply them in an African context, thus enabling African universities to participate fully in the digital age. AODL benefits a wide variety of scholars, students, and institutions by producing multilingual, multimedia materials for both scholarly research and public viewing audiences. AODL serves scholars and students conducting research and teaching about West and South Africa as well as teachers and students of African languages in both the United States and Africa. It also provides a valuable model for creating and distributing a diverse array of materials in a region with very limited electronic connectivity.

Kornbluh and MSU colleagues working with African universities believe that in an era of globalization, interdependence and ongoing collaboration should be a primary goal. MSU's project is designed to build capacity for Internet-enhanced education and research. Universities have been the key engine of IT development in the United States and the same can be true in LDC universities, especially in Africa. Kornbluh said that it is vital to strengthen the university as a system for teaching, research, and service and that universities in Africa need to become effective and powerful players in fostering development.

MSU's approach is multi-faceted, involving technology transfer and infrastructure development, training, and collaborative multi-lingual content development to build local and regional networks. Digital libraries offer open, high quality, cheap, reliable access to resources for research, provide quality content for teaching, and offer full participation in research and teaching networks, as well as opportunities for local publishing. They improve local capacity and model best practices including the use of open source software.

5. Building Capacity within Partnerships: Information and Communication Technologies for Poverty Reduction. Manuel Piña, Texas A&M University System

The Texas A&M University System (TAMU) project at the International Potato Center (IPC) in Peru started in 1998. The TAMU project has completed computer-based training and has developed an online potato seed course for the IPC. In thinking about a set of five-year goals, IPC started seeing themselves as being connected worldwide, as a broker to world users trying to reach individuals in the countries responsible for research on key commodities. In 2001, the IPC adjusted its vision to work via IT to reach individuals with responsibility for crop distribution. As a result it has now become more network focused and more involved in technology-centered partnerships. The Center has used e-mail, video conferencing, including desktop videoconferencing, Live conferences, CD-ROMS, WebCT, bulletin boards, and surveys in its distance education efforts. IT has been used for four purposes: 1) training on a specific topic; 2) disseminating information from research centers for widespread access; 3) management of research to connect different partners around the world; and 4) virtual sharing of research results.

Piña proposed a distance learning model building on national agriculture research systems (NARS) and existing International Agricultural Research Centers (IARCs). The mission of the Consultative Group on International Agricultural Research (CGIAR) is to contribute to food security and poverty eradication in developing countries through research, partnerships, capacity building, and policy support, and to promote sustainable agricultural development based on environmentally sound management of natural resources. The advantages of IARCS are: focused research mandates with five major research thrusts; increasing productivity; protecting the environment; saving bio-diversity; improving policies; and strengthening national research. They maintain a presence within national programs, have a record of organizing successful training programs, and pursue collaborative research with universities, inter-center and regional networks, with varied distance education interests and capacity for distance education. Their goal is to make information available in timely and appropriate ways to collaborators around the world and to enhance their knowledge and skills for conducting research and applying that and other research to farmers and their families.

TAMU made a series of recommendations for what is needed for successful collaboration in distance education: 1) technology that works; 2) a specific topic focus; 3) support staff trained in Technology Assisted Learning; 4) committed (and rewarded) scientific staff; and 5) institutional support (faculty reward system, and funds allocated to the effort).

Model 3. A Brokering Model

Example:
Texas A&M University System (TAMU) and the International Potato Center (IPC), Lima, Peru, MATRIX, Michigan State University (MSU).

Key Elements:
The model is based on a strong interactive link between two principal partners – a university in the United States and a regional "broker" such as an International Agricultural Research Center (IARC) or a university or a major NGO with credibility and capacity for leadership in targeted regions or countries. In the IPC model the broker links with sets of entities that comprise National Agricultural Research Systems (NARS); i.e., universities, research institutions, extension organizations, and NGOs from countries in the region collaborating with an IARC. The U.S. university links with other universities in the United States. An expanded model could include the principal U.S. university linking with research organizations and universities in the United States and in other countries. The network may be used primarily for continuing education for professionals; e.g., researchers, extensionists, health workers, university faculty, non-governmental organization (NGO) staff, and industry leaders. Secondarily, it could be used for academic training for students; i.e., courses for undergraduate or graduate credit, and/or sites for collaborative graduate masters' or doctoral research.

It is probable that an effective communication platform and processes are key to success within this model. Given that this model includes multiple functions, only communication and finance are included. This complex model could be disaggregated into components that would include aspects of other models described in this report depending on which of its multiple functions were being examined.

Continued on next page

Model 3. A Brokering Model (continued)

Organizational characteristics:
The model can be used for training (developing or improving skills and knowledge), disseminating information (sharing outcomes of research or experiences), or managing research projects (enabling punctual and timely sharing of protocols and outcomes of research activities among research collaborators). The success of this model depends mainly on six key aspects.

1. The topic to be addressed (subject-matter content delivered or exchanged, or course of study offered) must be decided as a result of a need expressed by the participating countries, through the regional broker.

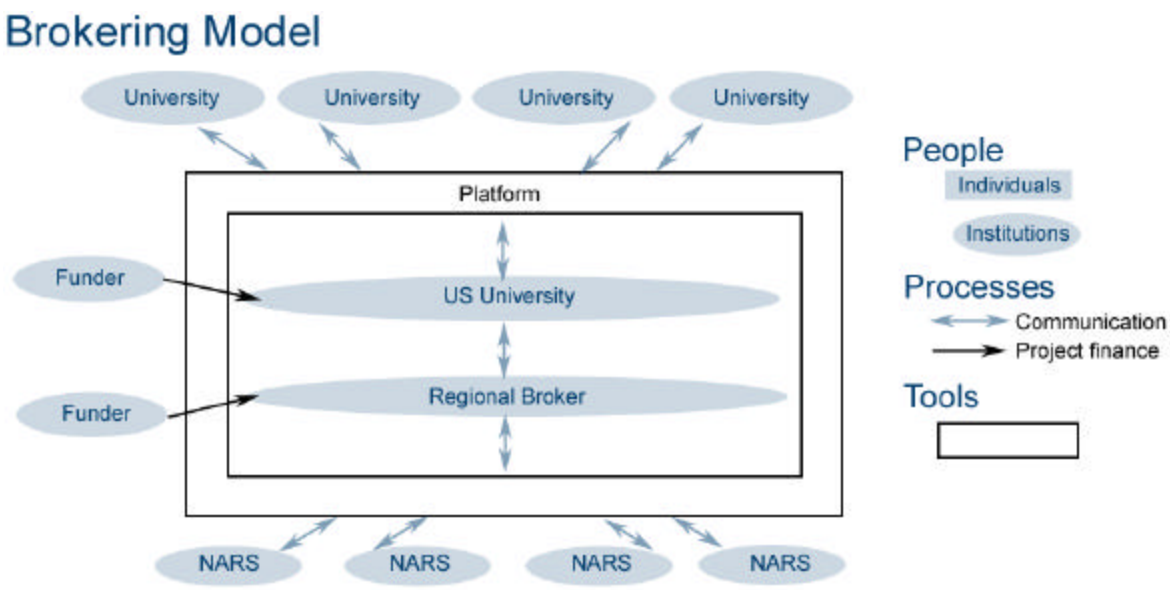
2. A virtual platform for delivery and exchange of information must be functional in the region; e.g., WebCT or other Web-based platform, for synchronous and asynchronous online learning.

3. A strong, interactive, and effective link must exist between the principal U.S. university and the regional/local broker. This link is comprised of two elements, (a) effective and efficient continuous communication and (b) a subject-matter content area that is relevant to the region and for which there is expertise at the principal U.S. university or, collectively, among the participating universities or research organizations in or outside the United States. Instructional Communications Technology teams (ICT Teams) must be formed at the principal U.S. university and the regional broker. The ICT Teams must be capable of developing and producing materials for use via the virtual platform and training faculty and staff of all network institutions and organizations.

4. The principal U.S. university and the regional/country broker must possess the technical and political capacity to forge, form, and establish linkages with other universities and/or research organizations or national systems, respectively.

5. There must be open and effective communications between all partners in the network, through the virtual platform.

6. The model should empower the national systems to attain and use information that responds to their needs.



Model 3. Simplified process model for the Brokering Model, TAMU, MATRIX, Michigan State University (MSU). *Key Element: strong interactive link between two principal partners.*

This model is different from the others included in this report in that it is not focused solely on distance *learning*. Its primary focus is on *collaboration* rather than on *learning*, although learning may happen within this model, it happens within the broader framework of *collaboration*. Therefore, the processes identifiable with this model are higher level processes that may themselves be subdivided into other processes. Also of significance is the fact that the actual and potential staff of the participating institutions are the main targets of the activities, although academic training for undergraduates and graduates is envisioned.

Table 3. TAMU, MATRIX/MSU (Brokering Model).

Process	**Tools**	**People**
Co-production and publication of information resources; language adaptation	Communication platform, meetings, workshops	Staff of participating institutions
Carrying out of joint research projects Joint development of curriculum	Communication platform, exchange of staff, workshops Communication platform, exchange of staff, workshops	Staff of participating institutions Staff of participating institutions
Offering joint continuing education courses	Communication and e-learning platform	Staff of participating institutions
Offering credit courses	Communication and e-learning platform	Staff of participating institutions
Project finance	Not applicable	Single or multiple donors, national and international

6. Lessons Learned in Health Education Collaborations for Professional Development and Community Empowerment. Melissa Clarke, Howard University

The Emergency Medicine Internet Teaching Tool Project (EMITT) is a telehealth educational project in emergency care for professionals. It involves ongoing collaborations between two higher education institutions, Howard University and the University of the Transkei (UNITRA). The goal is developmental, to produce doctors with new emergency skills. Traditional approaches such as sending professionals to take courses are not optimal solutions in some parts of Africa, as families lack resources and professionals have limited time available. EMITT has created the infrastructure to deliver content and build capacity at UNITRA and uses multimedia models, online medical database access to encourage research, real time case consultations, and videotaped teaching conferences.

UNITRA has become a resource for other institutions. The Telemedicine Resource Center on the campus at UNITRA is linked to secondary hospitals, and continuing medical education programs for credit are available. New content has been incorporated into the existing curriculum, and IT professionals have been trained to maintain the new network. The curriculum is now used widely for teaching, and the project has left a legacy of both telehealth resources and technical training that will keep the distance learning component going.

Clarke listed several factors that can ensure success. The U.S. university must ensure that the needs identified in the developing country context match the institution's own mission and priorities. The approach should be needs-based and country specific, and project objectives must be clear. Collaboration and educational intervention must be designed to meet what has been decided upon as the goals of the project. Support is required on both sides and collaboration with others— for example, with government ministries that are able to obtain IT resources by sponsoring links and arranging appropriate bandwidth— is essential. The EMITT project encountered problems with connectivity, especially for use of video, and CD-ROMS had to be substituted. It is therefore important to match the technology to the local context. CD-ROMS and tapes can be used until other means are ready, but consideration of project objectives should include analysis of what is needed to accomplish these objectives, whether online access is required or whether print manuals will suffice. If the goal is to update medical information as it advances, then the need is for online access to digital libraries. Clarke also advised developing credentialing to ensure proper accreditation when using new methods for course delivery. Clarke's advice was to think big, but start small and scale up by leveraging successes.

7. Networks for Capacity Building and Knowledge Exchange. Derek Keats, University of the Western Cape

Keats presented a model of distance education initiated in South Africa in 2002, in which four U.S. universities (University of Colorado at Boulder, the University of Florida, the University of Maryland and Washington State University) together with seven South African universities (University of Dar Es Salaam, the University of Zambia, the University of Botswana, the University of Fort Hare, the University of Witswatersrand, the University of South Africa and the University of the Western Cape and two training institutes, the U.S. Telecommunications Training Institute (USTTI) and the African Advanced Level Telecommunications Institute (AFRALTI), formed a partnership called NetTel@Africa to offer a post-graduate diploma and Master's program in ICT policy and regulation. The need for formal training in these areas was identified by the Telecommunications Regulators Association of Southern Africa (TRASA), an agency that mobilized resources from four additional partners: the Federal Communications Commission (FCC), the International Telecommunications Union (ITU), the Commonwealth Telecommunications Organization, (CTO), and the National Association of Regulatory Commissioners (NARUC). Courses are open to anyone with an undergraduate degree in any discipline, and each institution in South Africa is able to deliver an accredited course via the Internet using Open Source software made in Africa, which allows for customization of content for export to CD-ROM. Face-to-face delivery is also offered.

NetTel@Africa is developing ten course modules for programs at the post-graduate diploma and master's levels in telecommunications policy and regulation at African universities, each requiring collaboration between at least one U.S. and one developing country institution. Synergy is created as the project brings together institutions from developing and developed countries to deliver a program that no institution could do alone. Collaboration across local and national boundaries and content sharing (among the partners) avoids re-inventing resources that exist in only one of the partners. Credentials are given by the enrolling institution. Cross-institutional facilitation takes place through technology-mediated communication, and peer-to-peer exchanges at periodical face-to-face meetings. Such course development efforts require support from senior management. For example, the University of the Western Cape requires Senate approval of any new courses. In this particular context, approval is less difficult as the institution is already involved in collaborative programs, has an innovative mindset, and, although national accreditation procedures are still in progress, a short-term framework exists to allow the program to move forward. The issue of standards is of key importance to the resource partners and peer review is used at all stages of the project. Cost is another issue. Before it eventually generates its own revenue the project continues to receive support from USAID, a principal funder for NetTel@Africa, and other external sources.

Keats attributes the success of e-learning across cultures to successful structured communication. Project management is difficult and must be well understood. Success is based on trust, communication and the ability to deliver. Keats identified several communication models, including: 1) communication via a coordinator, "the structured gossip monger model," 2) communication through multiple pairs, "the unstructured gossip model," and 3) technology mediated communication, "the structured openness model" to define communication patterns. The first leads to projects that are disconnected from each other, the second to confusion and mistrust, and the third to awareness, trust and success, as everyone understands the processes and expectations involved.

Model 4. A Multiple Alliance Model[1]

Example:
NetTel@Africa

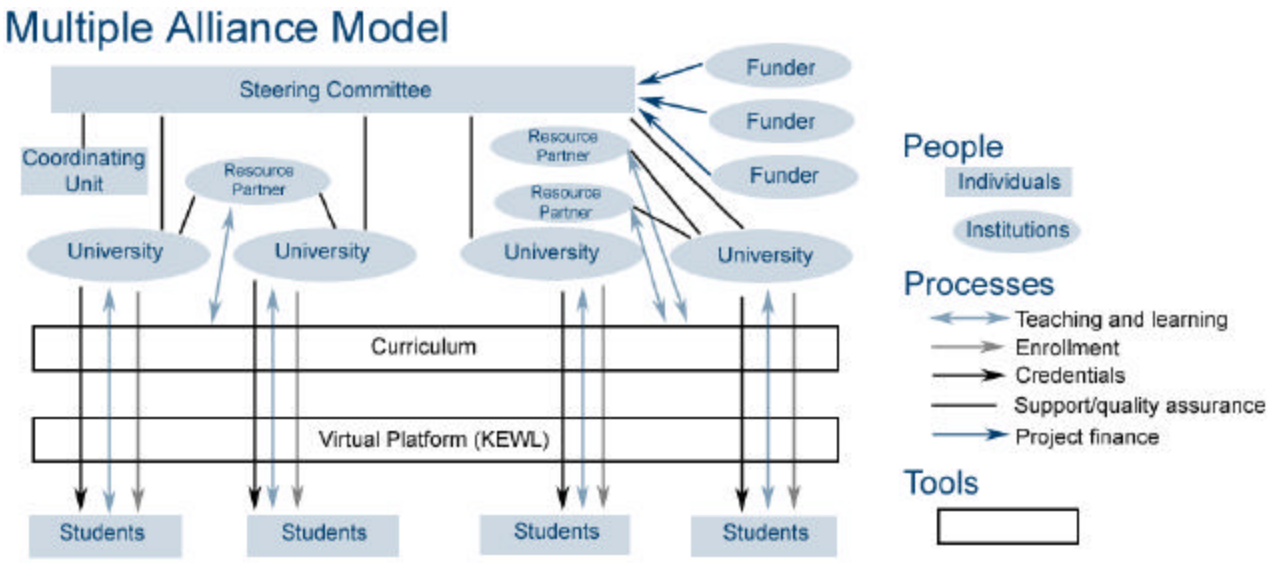
Key Elements:
The alliance/network model is based on an alliance of different kinds of partners who include multiple resource partners, delivery universities and funders in response to an identified regional need. An independent organization acts as a coordinating unit to facilitate all processes within the network. Students registered at participating universities can sign-up and receive credit for courses through the participating institution in which they are registered. Each course module is unique and does not duplicate modules developed by other institutions. Implementation demands trust, good communication, and ability to deliver.

Organizational characteristics:
Partners from different countries have expertise and funding (e.g., from USAID). Delivery universities work with one or more resource partner to build expertise. Buy in of senior management of institutions is important e.g. courses have to pass University Senates. Peer review is used at all stages to ensure standards. Creative use of technology and customization is offered by open source software. To have e-learning across cultures work a successful "structured" communication model with technology-mediated communication is needed.

Course Characteristics:
Diploma or MA programs via Internet or face-to-face, content sharing among partners using open source software. Each institution accredits and offers program but does not reinvent resources that exist in one of the partners.

Student Characteristics:
Any undergraduate degree offers entry into course.

[1] See page 37 for discussion of a similar model, the virtual entity model.



Model 4. Process Model for NetTel@Africa. *Key element: the formation of a complex multiple alliance among different kinds of partners.*

Table 4. NetTel@Africa (Multiple Alliance Model).

Process	**Tools**	**People**
Curriculum/course design	Communication tools, meetings, workshops	TRASA & other beneficiaries, resource partners, universities collaborate to design courses and curriculum
Teaching-and-learning	Learning management system, some face to face, the shared curriculum	Universities, some resource partners, guests, students
Enrollment	Management systems of host institution	Each host university enrolls its own students and makes available access to the system
Credentials	Not applicable	Each host university awards its credentials to the NetTel@Africa students who are enrolled locally
Support and quality assurance	Learning management system, electronic mail, website	Coordinating unit, steering committee, resource partners,
Project finance	Not applicable	Multiple: USAID and other international donors

Communication Patterns

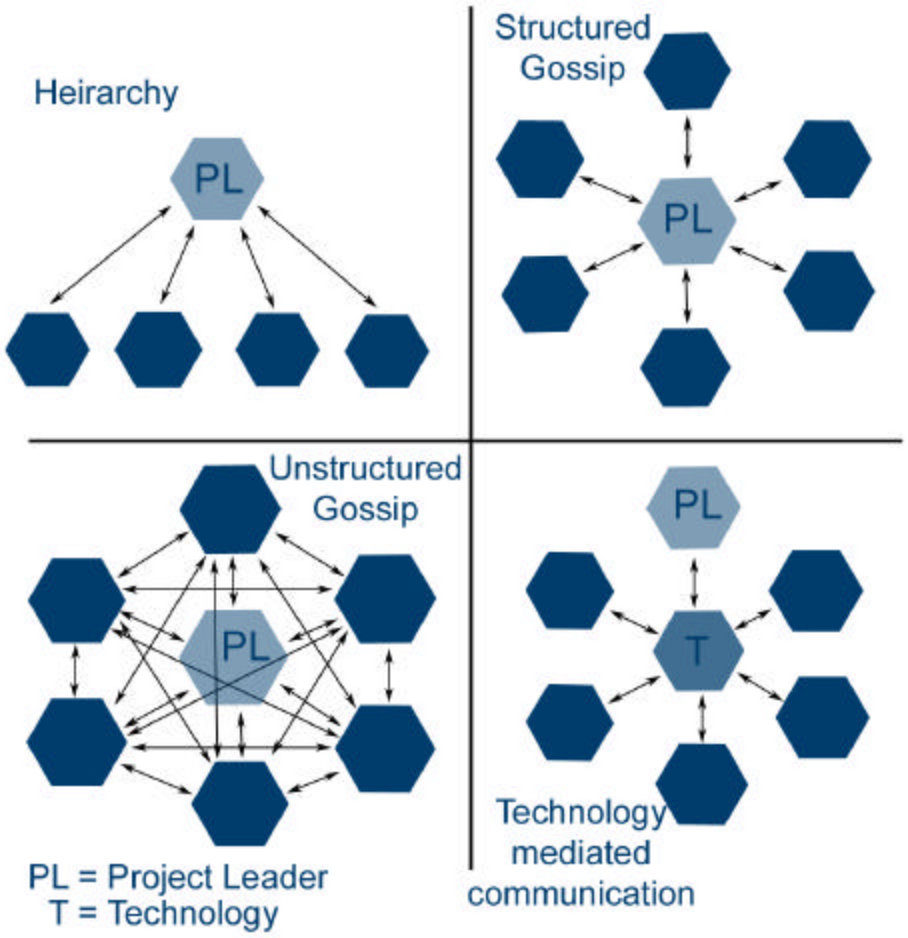


Figure 1. From Hierarchical to Structured Openness Models of Communication.

8. A Program for in-Service Teacher Qualification. Michael G. Moore, The Pennsylvania State University

Moore used Brazil as an example of a country where the clientele for teacher training programs are widely distributed, one in which the best trainers are not located where the needs are greatest, to illustrate his point that problems in distance education are not primarily pedagogical. Rather it is how learning processes are organized that is important. The opportunity cost in Brazil is high as bringing teachers and trainers together is expensive. Moore presented a generic model of a Distance Education Training Network created in response to the challenge to build capacity in Brazil where no infrastructure existed for the training of 75,000 teachers. In this model, the best human and technical resources of the nation (and potentially internationally) are "commissioned," regardless of their institutional location, on a temporary basis made possible by use of a powerful budget administered by a small permanent core management team. Emphasis is placed on the division of labor, economies of scale, a hierarchical management structure, selective use of technology, and strict monitoring for quality control, and training. Courses are designed centrally by teams made up of a country's (and potentially international) leading content experts and instructional designers, materials are produced by leading production companies, learner support is provided by local tutors, and administration is centered in national and regional offices with local enrollment and other student services supervised regionally and nationally.

Moore suggested several aspects of the model that created the conditions for successful implementation of the teacher training project. He would want these included in large multi-national projects. These conditions are: 1) the existence of well-defined legislation and major support with funding from; e.g., the World Bank; 2) national leadership that brokers state and local agreements; 3) use of technology appropriate to the conditions of the trainees with more sophisticated technology used at the central and regional levels; 4) world class content, video, text, and instructional design specialists (the best people from wherever they are located across all universities, the best textbook designers, etc.); and 5) aspects of the delivery system that include well integrated learner support, training, and a tutorial system.

Model 5. A Commissioning Model

Example:
Brazil's Ministry of Education's teacher development program (PROFORMAÇÃO).

Key elements:
This is a systems approach to distance education that provides the advantages of the national open universities without their fixed costs. The best human and technical resources of the nation (and potentially internationally) are employed regardless of their institutional location *not* on a voluntary collaborative basis, but are "commissioned" contractually per program, by a permanent core management team applying a substantial budget.

In the case of PROFORMAÇÃO, training has been provided across the (continent sized) nation to 27,372 teachers in 21,000 schools using personnel from universities, training colleges, public and private media companies to produce teaching materials, with learner support through a network of 2,660 tutors monitored and trained by regional training centers.

Organizational characteristics:

1. Division of labor, specialization and economies of scale. Courses are designed centrally by teams selected from a country's leading content experts and instructional designers, materials are produced by leading television studios, publishing houses and computer software designers. Learner support is provided by local tutors, and administration is centered in national and regional offices with enrollment and other student services being local, but supervised regionally and nationally.

2. A hierarchical structure, with — at the critical point of contact between trainee and the system — a local tutor who interprets content but does not originate content and whose role is to support the students under the supervision of a more highly qualified person at the regional level. Thus the hierarchy of expertise and supervision ranges upwards from the tutor to trainers who supervise the tutors, then a state supervisor, to the national management team.

3. Selective use of technology. Unlike many attempts to use technology in distance education, the system is not driven *by* technology, but *applies* technology according to circumstances and needs of users at each level of the system. Thus the *appropriate* technology for the trainees, given their geographic, economic, and other circumstances, is often simple technology such as printed study guides and video- tapes. At the state and national level *interactive* satellite and computer based technologies are used, particularly the Internet for purposes of data management and for training of personnel at those levels.

Continued on next page

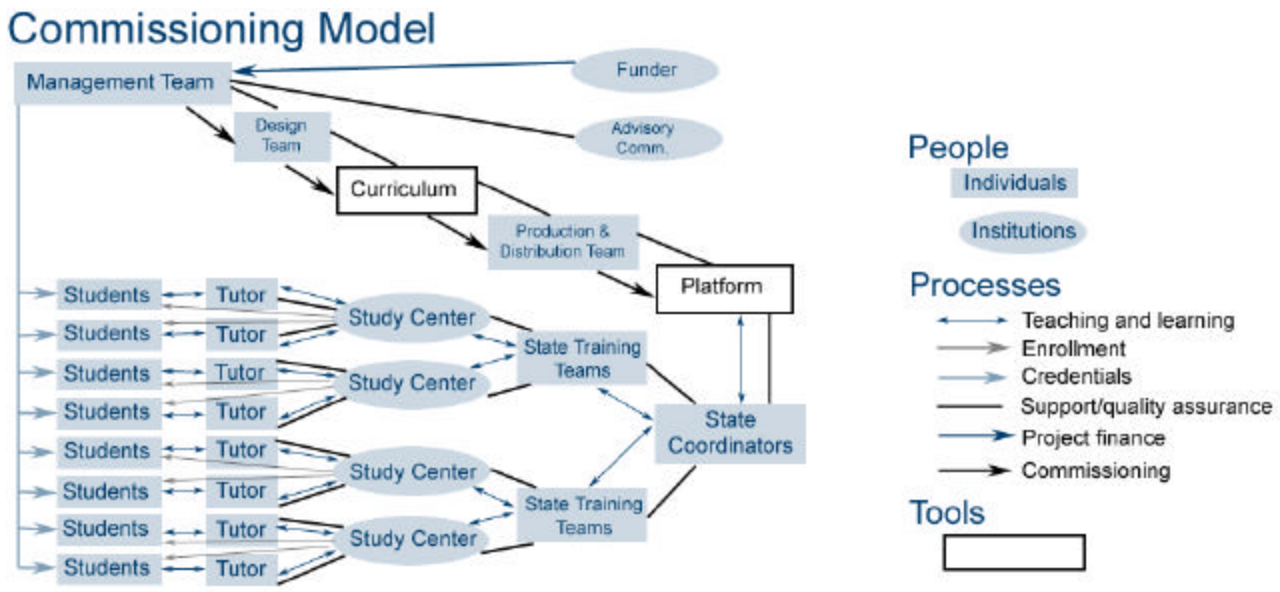
Model 5. A Commissioning Model (continued)

4. Emphasis on instructional quality design. While at the level of the interface of trainees with the system, the technology employed may be simple, the *instructional design technology* is very sophisticated. The structure of the course is delimited by trainee time constraints; the content is organized to focus on performance outcomes defined by a hierarchy of learning objectives; in-course practice activities lead the trainee to the accomplishments necessary to complete evaluation assignments. Apparently simple materials are rigorously designed, pre-tested, and developed for implementation in language and with techniques considered appropriate for the characteristics of the clientele.

5. The system has an intensive *quality control* mechanism based on weekly monitoring of *performance and criterion referenced* evaluation. Every trainee has to produce a weekly assignment as evidence of performance. This is evaluated by tutors and in turn by tutor-trainers; these in turn are evaluated at the state level. Data is entered into an online database and monitored systematically at the state and national levels. The system provides the facility to identify and intervene with *any* individual trainee who is not meeting performance standards, any tutor, any trainer, any training center and indeed any subject area, even any particular assignment.

6. The system is managed by a small, highly qualified central management team that is able to exercise control of quality as a result of budgetary control. A multi-million dollar budget is derived from solid, high level political support, manifested by legal foundation for the training program. Certification is by the central government and linked to salary and job retention.

7. The basic network concept is that content specialists and specialists in instructional design, media production, instruction and learner support are all commissioned and contracted on a per-project basis, with the aim of linking the best of these wherever located in a continuously open and highly flexible network. Only the small management team is permanent.



Model 5. Commissioning Model for Brazil. *Key Element: The best human and technical resources are "commissioned" by a permanent core management team.*

Table 5. Brazil's Teacher Development Program (PROFORMAÇÃO) (Commissioning Model).

Process	**Tools**	**People**
Curriculum design	Instructional design and technology. Course team meetings and online Interaction.	Inter-institutional team designs the curriculum and instructional packages in modular system.
Teaching and learning	Individual study of learning packages, group meetings for video viewing and tutor led workshops. Heavy dependence on student assignments for feedback and quality control.	Local part-time tutors supervise and monitor small number of students based on local study centers, regionally supervised and trained.
Enrollment	Management systems of regional institution.	Students recruited by local, Municipal authorities, with data management at regional centers.
Credentials	Performance scores recorded regionally, unit by unit and module by module.	Graduation certificates awarded by national authority.
Support and quality Assurance	Strict monitoring of performance by written assignments and on-site visits by tutors with intervention for individual student support or for tutor training as indicated by performance.	Hierarchical; central administration monitors regions, regions monitor tutors, tutors monitor students. Reliance on regional and central data bases.
Project finance	Heavy central investment to obtain high quality amortized by economies of large scale.	National government investment with modest buy-in required of state and municipal authorities.

9. Additional Model: A Virtual Entity Model

One additional model that was not presented at the Roundtable is the virtual entity model. It has been added here because it has similar advantages to the multiple alliance model, and is a variation on the same theme. It is probably most suitable when there is a strong regional or global organization with centers based in the host institutions, and a sufficiently strong global presence to be able to register as an independent entity. It should also have significant resources of its own with which to start the process of distance education.

Model 6. A Virtual Entity Model

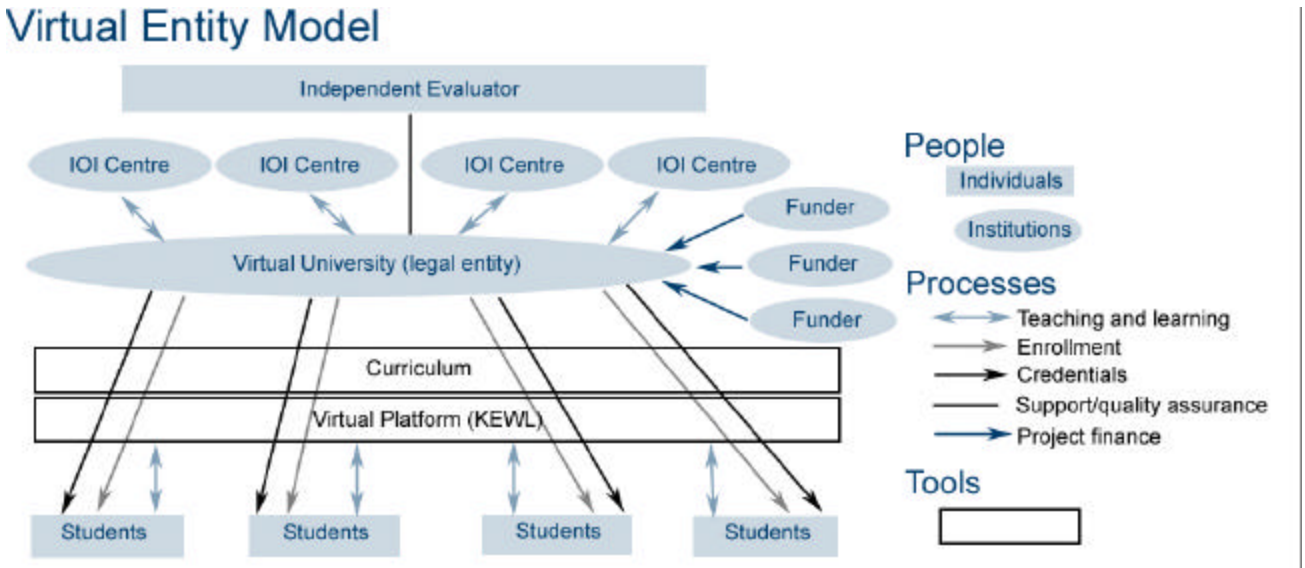
Example:
International Ocean Institute Virtual University (IOIVU) (http://www.ioivu.org)

Key Elements:
The virtual entity model is, in many respects, similar to the multiple alliance model in that a large number of different kinds of organizations form an alliance or partnership in order to deliver the program. Key elements are a global network of regional and local operational centers of a global NGO that are based mainly within universities around the world. Students registered at participating universities can sign-up and receive credit for courses but, unlike in the multiple alliance model, the courses are credentialed by the International Ocean Institute Virtual University (IOIVU) and not the host institution. Students graduate with a master's degree in Ocean Affairs and Law of the Sea from the IOIVU. Like NetTel@Africa, each course module is unique and does not duplicate modules developed by other institutions. The key element is that the IOIVU is established as a degree-granting institution (a process still moving through the legal channels of the Netherlands).

Organizational characteristics:
Partners from different countries have expertise and International Ocean Institute (IOI) as the lead organization provides seed funding to establish the project. The current phase involves negotiating the involvement of an alliance of donor agencies to fund the project. Expertise in the IOI centers is used to construct the teaching-and-learning and research program. Externally contracted peer review is used to ensure standards. Creative use of technology and customization is offered by open source software. To have e-learning across cultures work a successful "structured" communication model with technology mediated communication is required.

Course Characteristics:
Master's program via Internet with some face-to-face, content sharing among partners using open source software. Virtual institution accredits and offers program but does not reinvent resources that exist in one of the partners.

Student Characteristics:
Any undergraduate degree in any relevant discipline offers entry into the program.



Model 6. Process Model for the International Ocean Institute Virtual University (Virtual Entity Model). *Key Element: a global network of regional and local operational centers.*

Table 6. International Ocean Institute Virtual University (IOIVU) (Virtual Entity Model).

Process	**Tools**	**People**
Curriculum design	Communication tools, meetings as part of normal IOI processes, workshops	IOI regional centers; IOI technical working group; IOI planning council
Teaching-and-learning	Learning management system, some face to face, the shared curriculum	IOI Centers in universities, guests, students
Enrollment	Management systems of IOIVU	Students in participating institutions enroll via the IOIVU, not the host institution
Credentials	Not applicable	Credentials awarded by the IOIVU
Support and quality assurance	Learning management system, electronic mail, website, review tools in online system	External reviewer, peer review within IOI, formal IOIVU structures
Project finance	Not applicable	Multiple: IOI and other international donors

Synthesis: A Process Model Approach to Collaboration in Distance Education[1]

In the Roundtable discussions, an apparently unanimous consensus emerged regarding the importance of international collaboration in distance education that takes into account much more than technology. The collaboration must consider such questions as what is to be learned (curricular issues), how it is to be presented to learners (instructional design issues), the needs of teachers and learners in different cultural contexts, issues of cost effectiveness, and also address political considerations.

As participants explained and examined their different perspectives on these issues, what became increasingly clear was that everyone who had given serious attention to the problems and potentials of international collaboration had developed a conceptual framework that delineated the principal sets of variables that must be manipulated to develop programs that have a reasonable chance of success. Five such models were presented. None of the presenters had collaborated with others in preparing their model, or were aware that other participants planned to present their ideas about collaboration based on a conceptual model of any kind.

That each presenter found a need to design a conceptual model, and that all participants in the Roundtable adopted discussion of the models as the best means of coming to grips with the issues to be discussed, would seem in itself to be a very important outcome of the meeting. It is also powerful evidence for recommending that adopting one or more such models is a necessary precursor of, and foundation for, the articulation of policy and an implementation strategy in this field.

A key question that remained at the conclusion of the Roundtable was whether the differences among the models were merely differences in the way they were presented — such as the choice of visual graphics and terminology — or whether they were more substantial, representing significantly different alternative policies, strategies and methods for inter-institutional and international collaboration.

Either of these alternatives, that is, whether there is one model or more than one, could be of value to policy makers. The only opinion felt strongly and unanimously by participants was that an extremely disadvantageous strategy would be one under which individuals, institutions and expenditures were invested in a free-for-all, ad hoc competition that was uninformed by any strategic planning model.

The question posed by the Moderator for follow up to the Roundtable was what model might be most valuable as the potential basis for building future donor–assisted distance education programs. Might it be just one of those presented at the Roundtable, could there be several equally valuable alternatives, or could it be a mixture of two or more of the models? Alternatively, could it be that there is a common understanding among experts regarding what are the important variables in international collaboration in distance education, and that a single, generic model can be drawn to represent this consensus?

[1] Synthesis by Michael G. Moore of The Pennsylvania State University.

Comparison of Five Models

Perhaps the first interesting point about the process models is the choice of titles. If key concepts were to be listed for a generic model that might be recommended to an international agency they could well be those indicated in the five titles, that is, "Enabling", "Contractual," "Brokering," "Multiple Alliance," and "Commissioning." In one way or another, with differences being mainly differences of emphasis, each model features processes for enabling collaboration and building alliances, for commissioning contractual relationships and brokering services.

In the following discussion the models will be identified by reference to the project or projects that they exemplify, that is, respectively, the Pew Program in Course Redesign, the National Technological University (NTU)/Rio Salado (RS)/African Virtual University (AVU), NetTel@Africa, Texas A&M System, MATRIX/MSU, and Brazil models. Certain characteristics are found in all the models. Where they differ is primarily in the emphasis given to each characteristic as well as in how they are operationalized. Some of the ways in which authors of the models appear to be in general agreement are:

- The design and delivery of a broad, sustained high quality program of distance education requires a range of communications technologies, superior content and design expertise, and student support services. To provide the full range of services cost-effectively, collaboration among institutions (or among individuals from more than one institution) is essential;

- Similarly, high quality distance teaching requires competencies beyond those of any individual teacher and thus requires collaboration of various specialists organized in teaching teams;

- The range of technologies and human resources needed to design and deliver high quality distance education as well as the lead-in time needed for planning and means there has to be substantial up-front investment. Amortization of investment is achieved by providing courses to large numbers of students;

- Course design has to be complemented by learner support and instruction. Course design and administration can be centralized and distant. Learner support and instruction should be located in relatively close geographic proximity to the students. Face-to-face instruction is allowed for in all models;

- There are many common services that are best organized and administered by a central agency or lead agency, on behalf of the collaborating network partners. These usually include staff training;

- Funding has to be targeted, not dissipated, and specialist funding agencies, public or private serve an important role in forcing identification of priorities; and

- Contracts between funding agencies and collaborating institutions promote and enforce quality.

Areas of difference in emphasis among the models include:

- Emphasis in collaboration may be on voluntary collaboration (NetTel@Africa, Texas A&M System, MATRIX/MSU) or on formal contracts (NTU/RS/AVU, Pew Program, Brazil);

- Emphasis in collaboration may be on development of specific programs of courses (NUT/RS/AVU, Pew Program, Brazil, NetTel@Africa) and formal instruction of those courses, or emphasis may be on establishing a general enabling network with unstructured collaboration among individuals and institutions being a goal in itself (Texas A&M System, MATRIX/MSU).

- Emphasis in management control ranges from very tight central authority (Brazil) to relatively loose coordination of multiple partners, (NetTel@Africa, Texas A&M System, MATRIX/MSU);

- Emphasis may be on collaboration among institutions (Pew Program, NTU/RS/AVU), or emphasis may be on mixing both institutional and individual collaboration (NetTel@ Africa, Texas A&M System, MATRIX/MSU, Brazil);

- In some models (Pew Program, NTU/RS/AVU), emphasis is on a single institution designing courses for delivery by collaborating institutions. In other models, emphasis is on cross-institutional design (Brazil), or at least its potential (NetTel@Africa, Texas A&M System, MATRIX/MSU);

- Emphasis in some models is for the central institution to certify accomplishment by students (NTU, Brazil), and in others for each collaborating institution to certify its own students (Pew Program, RS/AVU, NetTel@Africa, Texas A&M System, MATRIX/MSU);

- Emphasis is generally on students not interacting across institutions, though in some models it is more likely (NetTel@Africa, Texas A&M System, MATRIX/MSU);

- Emphasis regarding quality assurance is reserved for the central management unit in some cases, and devolved to collaborating member institutions in others (NetTel@Africa, Texas A&M System, MATRIX/MSU);

- Most models emphasize the role of a single funding agency (especially Brazil and Pew Program), but others (NetTel@Africa, Texas A&M System, MATRIX/MSU) emphasize multiple funding; and

Some models give more emphasis to particular technologies (e.g., Texas A&M System, MATRIX/ MSU), while others (e.g., Brazil) emphasis technology selectivity and flexibility.

Each of these models has evolved in response to a particular set of circumstances and has been successful in meeting different needs. The Pew model addresses the common situation where a number of institutions are already engaged in teaching similar courses, and offers a way of reducing the inefficiencies of duplication while at the same time obtaining the

improvements in quality that comes from better focusing and organizing of resources. In that Rio Salado College has attempted to reorganize its faculty and other resources previously distributed on traditional departmental lines, this model also has arisen from a readiness to do old things better by using new technology. These are models that address a problem that is common not only in developed countries, but also in developing countries, where educational resources are deployed in organizational structures that were appropriate and necessary before the electronic age but must now be reorganized and redistributed. While these are models that will be relevant in considering the needs of many developing countries, for most the bigger problem is more one of building capacity from scratch than one of redistribution. The models do alert us, however, not to fall into the easy trap of supporting the transfer of familiar pre-information age organizational structures to developing countries, the reorganization of which is now the challenge for our developed countries.

The NTU/AVU model has emerged to achieve efficiencies in design and delivery through institutional collaboration and use of technology. It seems to represent situations where the need for learning is so far in excess of indigenous resources and also where the need appears to be too serious or urgent to wait for development of an indigenous resource, as is the need for many African countries to acquire basic education, engineering, or HIV/AIDS education. Under such circumstances it may be most advisable to identify a foreign lead organization — and always one with a track record in this field — to design a program and to help one or more local institutions set up a learner support network. It is important to keep the temporary nature of these programs in mind and to plan them with a view to removing external provision and building indigenous capacity. The old adage of providing fish for today but also teaching people to fish applies.

The NetTel@Africa model emphasizes the importance of institutional capacity building in the developing country institutions. It emphasizes the potential of linking a diversity of resource partners as well as universities. While the central unit in the NTU/RS/AVU model could be considered a “management” unit, in NetTel@Africa it would be more appropriately considered a “coordinating” unit. The degree of control of participant decision seems to be considerably less, with both short-term disadvantages and potential long-term benefits. As far as delivering specific courses, the NetTel@Africa model has the disadvantage of the time and money needed for multi-party negotiations. Experience with such voluntary networks also suggests difficulty in sustaining long-term discipline in monitoring, quality control, and faculty management. Perhaps when capacity building is a high priority this model should receive most consideration.

The Texas A&M System, MATRIX/MSU model might be most appropriate when the goal is establishing relatively informal long-term networks among professionals and academics. This applies both in-country as well as bi-laterally or internationally. Here it is similar to NetTel@Africa, with the primary focus on information dissemination and collaborative research rather than the design and delivery of particular educational courses. In this model the expectation of a funding agency is that the facilitation of more effective communication among academic peers on their professional interests will lead to production of new primary information suitable for use in education and training. This would otherwise not be generated, simply because the collaborating parties were not in touch with each other.

The Brazil model is appropriate where substantial investment is possible and numbers of students are quite large. It is particularly suitable in fields where there is a hierarchical infrastructure such as teacher training, health education, and police and public service professional training. The scale of investment and the scale of intervention underscores the importance of political support. The country-specific nature of the learning needs to be met suggests that cross-national teams are unlikely to be recommended. In the Brazil case foreign contributions take the form of funding (World Bank loans) and provision of experts to advise on setting up and managing the delivery system.

Conclusion and Recommendation:

"What model might potentially be most valuable as the basis for future donor-assisted distance education purposes? Might it be just one of those presented at the Roundtable, or could there be several?"

From this brief review it becomes clear that the answer is that none of the models presented will be the most valuable under all circumstances, and that while the models share certain core concepts, they represent a continuum of options, each of which is likely to be the most useful guide for practice within a range of contexts and circumstances.

The continuum referred to can be defined according to some broad parameters, that is, the models range

FROM those:

- Having strong central control and centralized management.
- Suitable where specific outcomes can be expected and evaluated and are relatively short-term.
- Systems that control both design and delivery of distance education programs.
- Where funding is secure.
- Where student numbers are large.

TO those:

- Having a distributed and independent local management.
- Where program focus and expected outcomes are more general, long-term and harder to evaluate.
- Having systems that control only the design phase of the distance education process.
- Where funding is subject to partner decisions.
- Where student numbers may be small.

Development organizations would be advised not to commit themselves to any of these models, *per se.* Nor should they engage experts in any of the models before engaging the services of one or more individuals capable of analyzing the educational/training context in which the distance education program has to be established. After considering the context and receiving a report on the learning needs in that context, the organization can pull from the range of models reported here, can select from that 'toolbox', the most appropriate for the particular case. This recommendation is based on recent experience in a developing country context where an informed discussion of the country's needs resulted in the adaptation of a particular model to best suit a unique set of circumstances.

Two important elements seem to define some of the interactions examined in the preceeding discussion of models presented at the Roundtable: the degree of equal collaboration and the degree of autonomy of the institutional processes. If one adds the IOIVU, traditional institutional programs offered by individual universities in the United States and overseas, and the new and large private e-universities, one can imagine a pattern as illustrated in Figure 3 below, which was produced by Derek Keats, University of the Western Cape.

Degree of Collaboration or Autonomy

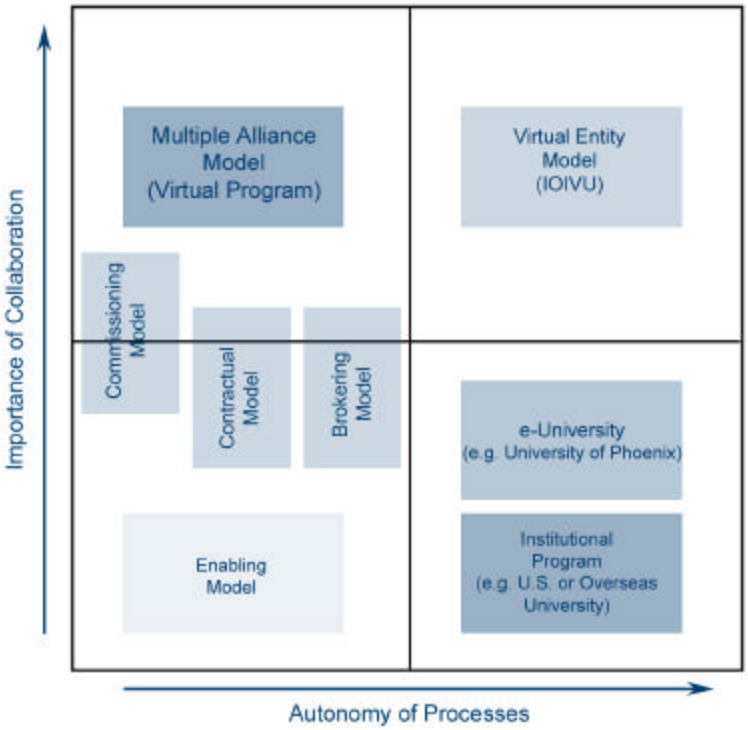


Figure 2. Degree of Collaboration or Autonomy in Distance Education

Appendices

1. Roundtable Agenda

POLICY ROUNDTABLE SERIES

HIGHER EDUCATION AND GLOBAL DEVELOPMENT

Strategies for U.S. - Developing Country Collaboration in Distance Education

October 24-25, 2002

Association Liaison Office for University Cooperation in Development

in cooperation with the

U.S. Agency for International Development

Focus: Many in the U.S. Agency for International Development (USAID) and the higher education community believe that the application of distance education concepts and technologies holds tremendous promise for attainment of common goals related to international development. Increasing the competency of cadres of emerging professionals in developing countries who work in development-relevant sectors such as agriculture, education and health is an important objective for the Agency. Distance education approaches have the power to facilitate learning by increasing international access to experience and knowledge from established universities worldwide. The application of Information and Communication Technologies (ICTs) within U.S.-developing country higher education collaborations has the potential to facilitate success in several key areas: shared courseware, shared credentialing and faculty/researcher networking, and to do this on a large enough scale to make a difference for development. New strategies for accomplishing U.S. - developing country collaborations in distance education seem to be needed, or at least, lessons learned from successful experience need to be more widely applied. It is also likely that USAID has a facilitating or enabling role to play although the range of feasible approaches for donor intervention is not yet known.

Purpose: This meeting will provide an opportunity for representatives of USAID and higher education to carefully consider alternative strategies and approaches for U.S.-developing country collaboration in distance education. Participants will be asked to consider a number of questions: What lessons can we learn by comparing "false starts" with successful distance learning applications? How can USAID, in partnership with higher education, use ICTs to reach the greatest number of emerging professionals who ultimately will provide local leadership for development efforts? What is the best strategy for USAID to adopt and/or fund? What are the most feasible institutional configurations to adopt if we are to achieve success? The Roundtable will try to conclude which strategies for U.S.-developing country collaboration in distance education hold the best promise of being feasible and widely accessible and to suggest how USAID might approach supporting such collaborations.

Thursday, October 24, 2002

8:30am

Continental Breakfast
Roundtable participants meet

9:00am

Convening of Roundtable
Joan M. Claffey
Executive Director
The Association Liaison Office for
University Cooperation in Development

Introductions – Roundtable Moderator
John C. Vaughn
Executive Vice-President
Association of American Universities

USAID Welcome
Emmy B. Simmons
Assistant Administrator
Bureau for Economic Growth, Agriculture, and Trade
USAID

Higher Education Associations' Welcome
Michael Baer
Senior Vice-President
Programs and Analysis
American Council on Education

USAID's Expectations
Anthony Meyer
Director, Information Technology,
Office of Energy and Information Technology
Bureau for Economic Growth, Agriculture, and Trade
USAID

9:30am

Overview of Sessions
Roundtable Moderator

Framing the Issues: Lessons Identified
Assessment of Issues in Distance Education Today:
What Has Been Identified, and What Do We
Need to Know?
Frank Newman
Director, The Futures Project, Brown University
Former President, University of Rhode Island

Framing the Issues: Promising Models
Models of Institutional Relationships
and Sustainable Systems for
Effective Distance Learning
Lionel V. Baldwin
Founding President
National Technological University

10:10am

Introductions and Overview of Case Studies
Roundtable Moderator

Case Study #1
Meeting the Increasing Demand for
Higher Education through Distance Education
Models for Course Redesign
Carolyn Jarmon
Associate Director
Center for Academic Transformation
Rensselaer Polytechnic Institute

Case Study #2
The Globalization of Higher Education
Collaborations Between U.S. and African Universities and
Faculties: Building Capacity for Internet-Enhanced Education
and Research
Mark L. Kornbluh
Director, MATRIX, Center for Humane Arts, Letters,
and Social Sciences OnLine, and
Associate Professor of History
Michigan State University

10:50am

Break

11:10am

Introductions
Roundtable Moderator

Case Studies #3
Capacity Building for Development
Building Capacity within Partnerships:
Information and Communication Technologies
for Poverty Reduction
Manuel Piña, Jr.
Special Projects Director
The Agriculture Program of the Texas A&M University System

Models and Lessons Learned in
Health Education Collaborations for
Professional Development and Community Empowerment
Melissa E. Clarke
Associate Professor and Director of Research,
Division of Emergency Medicine
Howard University

A Systems Approach to Online Learning
Carol Scarafiotti
Dean of Instruction
Rio Salado Community College

Networks for Capacity Building and Knowledge Exchange
Derek Keats
Executive Director, Information and Communication Services
University of the Western Cape

Thursday, October 24, 2002, Continued

12:10pm
Roundtable Discussion of
Presentations and Case Studies
Roundtable Moderator and Participants

1:00pm
Working Lunch

1:45pm
Introductions and
Overview of Discussion Sessions
Roundtable Moderator

Current and Future Practice
Conceptualizing and Developing Strategies for U.S.-Developing Country Collaboration in Distance Education
Michael G. Moore
Director, American Center for the Study of Distance Education
Professor, College of Education
The Pennsylvania State University

2:10pm

Roundtable Discussion
Questions: What models of university partnerships and alliances hold the best promise for the future? What does experience suggest in terms of bi-lateral relationships or multi-lateral networks for successful distance education programs?
Jane T. Bertrand
Director, Center for Communication Programs, and
Professor, Bloomberg School of Public Health,
Department of Population and Health Sciences
The Johns Hopkins University

Remarks followed by discussion

3:10pm
Break

3:30pm
Roundtable Discussion
Question: How can collaboration between USAID and higher education institutions for the purpose of effecting distance education in developing countries best be facilitated?
Marshall E. Allen
Director, Institute for Telecommunications
Oklahoma State University

Remarks followed by discussion

4:30pm
Synthesis and Adjournment
Roundtable Moderator

6:30pm
Working Dinner
Crowne Plaza Hotel
Franklin Park Room, A & B
14th and K Street, NW

Friday, October 25, 2002

8:30am
Continental Breakfast

8:45am
Convening of Roundtable — Roundtable Moderator
John C. Vaughn

Session I: Synthesis of Ideas from Previous Day
Overview from the Perspective of Higher Education
Roundtable Moderator and Higher Education Participants

9:20am
Session II: Comments and Reactions from USAID
Roundtable Moderator and USAID Participants

9:50am
Break

10:10am
Session III: Roundtable Discussion and Recommendations
Roundtable Moderator and Participants

11:30am
Synthesis — Roundtable Moderator
John C. Vaughn

12:00pm
Adjournment
Joan M. Claffey

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